

# An Improved Structure For The Endpiece Of Tape Rule

## BACKGROUND OF THE INVENTION

### 1. Field of the invention

The present invention relates to a construction of the endpiece of a tape rule. Especially to a construction of the endpiece of a tape rule, which can be rotated and secured in different positions, so as to measure articles from different directions and provide an extra utilization of the bottom surface of measuring tape.

### 2. Description of the prior art

It is known to public that the tape rule is a motive and convenient measuring tool. As shown in Figure 1, in general, the measuring tape B of conventional tape rule is reserved in a housing C. At the end portion of the measuring tape, there is an endpiece A. Said endpiece A contains a connecting plate A1 to be attached onto the end of the measuring tape B, and a hook plate A2 perpendicularly extended from the connecting plate A1. By using the hook plate A2 of the endpiece A, the measuring tape would not be completely pulled into the housing C after measuring is performed. Then, in using the tape rule, it is merely necessary for people to pull the endpiece A and then put the endpiece A against the surface of an article.

However, said endpiece A of tape ruler has some disadvantages as follows:

Firstly, in order to make the hook plate of the endpiece be connected to the measuring tape as an entity, and to prevent inconvenience of carrying the tape rule due to the endpiece. The area of hook plate A2 is made as small as possible. However, since the hook plate A2 is used to hook onto an edge portion of an article, after it is fixed, the measuring tape then is pulled out according to the movement of people, such that the length or distance to be measured is obtained. If the area of hook is too small, it is difficult to hook onto an article and easy to slide away from the article to cause instant rewinding of measuring tape. It is then harmful to the user.

Secondly, since the hook plate A2 is extended in one direction, this construction enables the conventional tape rule to measure the length of articles only in one direction. It then presents a problem, for example, when a user wishes to hook onto the underside edge of an object, it is then inconvenient in uses.

In addition, since the hook plate A2 is extended in one direction, the bottom surface of the measuring tape then become useless, and the usage of tape ruler is limited.

## SUMMARY OF THE INVENTION

It is an object of the present invention to provide an improved structure for the endpiece of tape rule to overcome limitations and disadvantages of tape rule

as described above.

According to the improved structure for the endpiece of tape rule of present invention, there is a squeeze mechanism forming the hook portion of the endpiece. The position and hooking angle of the clamping plates of said squeeze mechanism can be changed, such that the tape rule of present invention can be used to measure objects from different directions.

According to the improved structure of the endpiece of present invention, since the clamping plates of said squeeze mechanism are rotatable, the bottom surface of measuring tape can be printed with scales for measuring objects having underside edges etc. This is another object of present invention.

According to the improved structure of the endpiece of present invention, since the convexed bottom surface of measuring tape can be printed with scales for measuring objects at this stage, the concaved surface of measuring tape is turned down and the two side edges of the measuring tape then would attach to the surface of the object, then it is not only convenient to measure but also convenient to accurately note marks on the surface of the object.

## BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of conventional tape rule.

Fig. 2 is an exploded perspective view showing the construction of the

endpiece of present invention.

Fig. 3A is a plane view showing the combination of present invention.

Fig. 3B is a side view of Fig. 3A.

Fig. 4A is a plane view showing the squeeze mechanism after being  
rotated.

Fig. 4B is a side view of Fig. 4A.

Fig. 5A is a side view showing an example of using the present invention.

Fig. 5B is a side view showing another example of using the present  
invention.

Fig. 6 is a perspective view showing an additional example of using the  
present invention.

Fig. 7 is a perspective view showing another preferred embodiment of  
present invention.

Fig. 8A is a plane view showing the preferred embodiment of the structure  
of present invention as shown in Fig. 7.

Fig. 8B is a side view of Fig. 8A.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

According to the improved structure of the endpiece of tape rule of  
present invention, as shown in Figs. 2, 3A & 3B, the endpiece 1 includes a  
fixing plate 11, an inserting plate 12 and a squeeze mechanism 2. On the rear  
portion of the fixing plate, a plurality of mounting holes 111, 112 are formed,  
such that it is firmly attached to the end of measuring tape by rivets or another

mechanical element. An inserting plate 12, perpendicular to the fixing plate 11 is formed on the front edge of the inserting plate 12 with it. Said inserting plate 12 is a flat plate with its two side edges formed in a shape of circular arc. On the inserting plate 12, there is a rivet hole 15 for holding a rivet element 17; and  
5 there is a small stop hollow 16 formed on each surface of the side edges of the inserting plate 12.

The squeeze mechanism 2 contains a front clamping plate 3, a rear clamping plate 4, and a central mounting plate 5. Said front clamping plate 3 and rear clamping plate 4 clamp the central mounting plate 5 together between  
10 them to form a perpendicular hooking plate. A circular hole 31 is formed in the front clamping plate 3; a circular hole 50 corresponding to said circular hole 31 is also formed in the central mounting plate 5; there is also a half circular buckle clip 51 partially connected with the upper surface of the bottom edge of  
15 said circular hole 50, such that the ends of the buckle clip 51 are flexible. The ends of said buckle clip 51 are formed as two extruded ears 52, 53. When the inserting plate 12 is inserted into the circular hole 50 from its open mouth, said extruded ears 52, 53 would mount into the stop hollows 16 formed on the surfaces of the side edges of the inserting plate 12. Besides, said rivet hole 15  
20 formed at the center of said inserting plate 12 is opposite with the rivet hole 40 formed on the rear clamping plate. Therefore, the rivet element 17 hold in the rivet hole 15 formed on the inserting plate 12 is operated as a pivot of said squeeze mechanism 2.

25 As shown in Fig. 4A and 4B, since the central part of said squeeze

mechanism 2 is inserted with an inserting plate 12 which is formed together with said fixing plate 11 to be fixed onto the end portion of measuring tape. And, said inserting plate 12 is pivotally combined with the rear clamping plate 4 by said rivet 17. Then the squeeze mechanism 2 is rotatable with the rivet 17 as a pivot. And, the inserting plate 12 can be stopped by the ends 52, 53 of said buckle clip 51 to be mounted into the stop hollows 16 formed on the surfaces of the side edges of the inserting plate 12. Consequently, the position of the plates 3, 4, 5 included in the squeeze mechanism 2 in corresponding to the fixing plate 11 or the measuring tape is adjustable.

Again as shown in Fig. 5A and 5B, after the endpiece of the present invention is combined with the measuring tape of tape rule 7. By rotating the squeeze mechanism 2 to adjust the perpendicular hooking plate formed by combining said front clamping plate 3, rear clamping plate 4, and central mounting plate 5 to be in upward or downward position. Then length of the object 71 can be measured from its upper surface or its bottom surface. For example, the underside of a table also can be easily measured. It would not be limited due to the different locations.

In addition, as shown in Fig. 6, since the squeeze mechanism 2 can be rotated in  $180^{\circ}$ , the convexed bottom surface of the measuring tape would be no more useless, that is, the convexed bottom surface 72 of the measuring tape can be printed with measuring scales. When the squeeze mechanism 2 is turned for  $180^{\circ}$  to hook another object, the two side edges of measuring tape would closely attach to the surface of the object, the measurement would be much

more accurate and the measuring tape can be used as a rule for drawing.

Furthermore, as shown in Figs. 7, 8A, and 8B, according to the improved structure for the endpiece of tape rule of present invention, the buckle clip 51 of the central mounting plate 5 of the squeeze mechanism 2 formed as a buckle ring 6 can be separated from the body of the central mounting plate 5. By putting the separated buckle ring 6 into the circular hole 61 formed in the central mounting plate 5, then an identical function of squeeze mechanism still can be obtained.

In conclusion from above, by using the rotatable endpiece of the measuring tape of a tape rule disclosed above, the tape rule would be adapted for measuring objects at different positions. It also can effectively increase the security in using the tape rule. There is no identical structure for the endpiece of a tape rule has ever seen by people. It is then an invention of novelty.

While the present invention has been particularly shown and described with reference to a particular embodiment thereof, it will be understood by those skilled in the art that various changes in form and detail may be effected therein without departing from the spirit and scope of the invention as defined by the appended claims.